

INORGANIC HYDROGEN COMPOUNDS AND APPLICATIONS THEREOF

ABSTRACT

Compounds are provided comprising at least one neutral, positive,
5 or negative hydrogen species having a binding energy greater than its
corresponding ordinary hydrogen species, or greater than any hydrogen
species for which the corresponding ordinary hydrogen species is
unstable or is not observed. Compounds comprise at least one increased
binding energy hydrogen species and at least one other atom, molecule,
10 or ion other than an increased binding energy hydrogen species. One
group of such compounds contains one or more increased binding
energy hydrogen species selected from the group consisting of H_n , H_n^- ,
and H_n^+ where n is an integer from one to three. Applications of the
compounds include use in batteries, fuel cells, cutting materials, light
15 weight high strength structural materials and synthetic fibers, cathodes
for thermionic generators, photoluminescent compounds, corrosion
resistant coatings, heat resistant coatings, phosphors for lighting, optical
coatings, optical filters, extreme ultraviolet laser media, fiber optic
cables, magnets and magnetic computer storage media, and etching
20 agents, masking agents, dopants in semiconductor fabrication, fuels,
explosives, and propellants. Increased binding energy hydrogen
compounds are useful in chemical synthetic processing methods and
refining methods. The increased binding energy hydrogen ion has
application as the negative ion of the electrolyte of a high voltage
25 electrolytic cell. The selectivity of increased binding energy hydrogen
species in forming bonds with specific isotopes provides a means to
purify desired isotopes of elements.

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